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|---------|-------------|-----------------------|
| ⑰ 発 明 者 | 前 田 秀 夫     | 茨城県鹿島郡波崎町矢田部8762-23   |
| ⑰ 発 明 者 | 春 日 保 志     | 茨城県鹿島郡波崎町矢田部8762-23   |
| ⑰ 発 明 者 | 伊 藤 仁       | 茨城県鹿島郡波崎町矢田部8762-23   |
| ⑰ 発 明 者 | 前 田 斐 彦     | 埼玉県南埼玉郡宮代町宮代台3-7-3    |
| ⑱ 出 願 人 | 花 王 株 式 会 社 | 東京都中央区日本橋茅場町1丁目14番10号 |
| ⑲ 代 理 人 | 弁理士 古 谷 馨   |                       |

目次 事項 頁数

1. 発明の名称

パン用改質剤及びそれを含有するパン生地

2. 特許請求の範囲

1. (a)カラヤガム、トラガントガム及びベクチンからなる群から選ばれた天然ガム剤の1種又は2種以上と、(b)グリセリン脂肪酸エステルとを、前者(a)：後者(b)の重量比が1：0.1～10となるように配合してなる組成物を有効成分とするパン用改質剤。
2. グリセリン脂肪酸エステルが、グリセリン脂肪酸モノエステル、グリセリン有機酸脂肪酸モノエステル、ポリグリセリン脂肪酸モノエステル及びポリグリセリン縮合リノレン酸エステルからなる群から選ばれた化合物である特許請求の範囲第1項記載のパン用改質剤。
3. グリセリン有機酸脂肪酸モノエステルを構成する有機酸が、クエン酸、コハク酸、酒石酸、又はジアセチル酒石酸である特許請求の

範囲第2項記載のパン用改質剤。

4. (a)カラヤガム、トラガントガム及びベクチンからなる群から選ばれた天然ガム剤の1種又は2種以上と、(b)グリセリン脂肪酸エステルとを、前者(a)：後者(b)の重量比が1：0.1～10となるように配合してなる組成物を、小麦粉100重量部当たり0.1～5重量部の割合で含有することを特徴とするパン生地。
5. グリセリン脂肪酸エステルが、グリセリン脂肪酸モノエステル、グリセリン有機酸脂肪酸モノエステル、ポリグリセリン脂肪酸モノエステル及びポリグリセリン縮合リノレン酸エステルからなる群から選ばれた化合物である特許請求の範囲第4項記載のパン生地。
6. グリセリン有機酸脂肪酸モノエステルを構成する有機酸が、クエン酸、コハク酸、酒石酸、又はジアセチル酒石酸である特許請求の範囲第5項記載のパン生地。

3. 発明の詳細な説明

(産業上の利用分野)

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\* NOTICES \*

1. This document has been translated by computer.  
So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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The dough which contains modifying agent for bread and it

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(71) APPLICANT

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000000091

NAME

Kao Corporation

ADDRESS

1-14-10, Nihonbashikayabacho, Chuo-ku, Tokyo

(72) INVENTOR

NAME

Hideo Maeda

ADDRESS

8762-23, Yatabe, Hasaki-machi, Kajima-gun, Ibaragi

(72) INVENTOR

NAME

Tamotsu Kasuga will

ADDRESS

8762-23, Yatabe, Hasaki-machi, Kajima-gun, Ibaragi

(72) INVENTOR

NAME

Jin Ito

ADDRESS

8762-23, Yatabe, Hasaki-machi, Kajima-gun, Ibaragi

(72) INVENTOR

NAME

Ayahiko Maeda

ADDRESS

3-7-3, Miyashirodai, Miyashiro-machi, Minamisaitama-gun, Saitama

(74) AGENT

NAME

Kaoru Furuya

WHAT IS CLAIMED IS:

1.

A modifying agent more than one kind of a nature gum agent chosen (a) by a cluster comprising karaya gum, gum dragon gum and the pectin or two kinds (b) with fatty acid ester of glycerin the former (a): a weight ratio of the latter (b) with 1:0.1 - 10 and constituent that it is combined so that it is, and it is for active ingredients and bread doing.

2.

A modifying agent for bread as claimed in What is claimed is Clause 1 that is the chemical compound which fatty acid ester of glycerin was chosen as by a cluster comprising glycerine fatty acid monoester, glycerine organic acid fatty acid monoester, polyglycerol fatty acid monoester and the polyglycerol condensation ricinoleic acid ester.

3.

A modifying agent for bread as claimed in what is claimed is Clause 2 where organic acid comprising glycerine organic acid fatty acid monoester is citric acid, succinic acid, tartaric acid or diacetyl tartaric acid.

4.

The dough including a weight ratio of the latter (b) containing 1:0.1 – 10 and constituent that it is combined so that it is, and it is in the ratio of 0.1–5 parts by weight per wheat flour 100 parts by weight the former (a) with fatty acid ester of glycerin more than one kind of a nature gum agent chosen (a) by a cluster comprising karaya gum, gum dragon gum and the pectin or two kinds (b).

5.

Dough as claimed in What is claimed is Clause 4 that is the chemical compound which fatty acid ester of glycerin was chosen as by a cluster comprising glycerine fatty acid monoester, glycerine organic acid fatty acid monoester, polyglycerol fatty acid monoester and the polyglycerol condensation ricinoleic acid ester.

6.

Dough as claimed in what is claimed is Clause 5 where organic acid comprising glycerine organic acid fatty acid monoester is citric acid, succinic acid, tartaric acid or diacetyl tartaric acid.

## DETAILED DESCRIPTION OF THE INVENTION

### INDUSTRIAL APPLICATION FIELD

The present invention relates to dough containing a modifying agent for bread and the said modifying agent.

More particularly,

Dough containing a modifying agent for karaya gum, gum dragon gum and bread which assume the constituent that a nature gum agent and fatty acid ester of glycerin chosen by a cluster comprising the pectin are combined, and it is active ingredients and the said modifying agent is related to.

[Prior art and red card]

Various kinds of additives combine with dough to manufacture high quality bread, and it is used.

For example,

Is suggested that gluten conditioners such as calcium sulfate, potassium bromate, the

ammonium chloride are added, and it is used, but the recusal of this kind of additive used so far is intended by a health-oriented boom of the recent consumer, and demand for of the bread which added no bleaching bread, wheat germ, dietary fiber enlarges, and the manufacturing method of the bread kind using the food ingredient which, therefore, is new is studied in various ways.

Also,

For a method with soft pan, a method to spoil fermentation time of the dough, a method to increase addition regime of the dough and a method to add the emulsifying agent which did monoglyceride with a main body are known.

However,

About the method to spoil fermentation time, fermentation time of the dough is often established under today's high-volume production method, and, thus, the change for the said fermentation time is difficult in a process.

The method to increase addition water in quantity often gives adverse effect to products without dough attaches to a manufacture instrument in a process because the moisture of dough increases, and a decrease of the work efficiency is caused, and it being.

Also,

It is wide, and the addition of the emulsifying agent which assumes monoglyceride a main body is adopted by simple and easy what to obtain soft bread.

For this emulsifying agent addition method, a method using the emulsification oils and fats that an emulsifying agent is added, and it is known to a method and oils and fats adding an emulsifying agent directly.

However, flaw to invite a decrease of the flavor of the bread and the decrease of working properties by the close typesetting luck of the dough is seen if bread products are going to be endowed with the softness in this emulsifying agent addition method, and addition quantity is raised.

#### MEANS TO SOLVE THE PROBLEM

As a result that because the agent except the improving agent for in natural product in line with needs of the consumer and conventional bread specifically found an extremely valid agent for the improvement of software of the bread and the texture, this innovator studied zealously, this Invention was finished.

That is, as for this Invention, a weight ratio of the latter (b) relates to active ingredients and a modifying agent for bread doing, detailed software for bread and a texture improver with 1:0.1 - 10 and constituent that it is combined so that it is, and it is the former (a) with fatty acid ester of glycerin more than one kind of a nature gum agent chosen (a) by a cluster comprising karaya gum, gum dragon gum and the pectin or two kinds (b).

Also,

As for this Invention, the former (a) relates to the dough including a weight ratio of the

latter (b) containing 1:0.1 – 10 and constituent that it is combined so that it is, and it is in the ratio of 0.1–5 parts by weight per wheat flour 100 parts by weight with fatty acid ester of glycerin more than one kind of a nature gum agent chosen (a) by a cluster comprising karaya gum, gum dragon gum and the pectin or two kinds (b).

The karaya gum as used herein is heteropolysaccharide acetylated partially exuding from tree called *Sterculiaurens*.

D-galacturonic acid, D-galactose, L-rhamnose and acetic acid are provided when hydrolyzed.

Also,

The gum dragon gum as used herein is mucilage exuding from the trunk of several kinds of shrubs of the *Astragalus* group of the Leguminosae.

The gum dragon gum consists of at least two kinds of polysaccharides, bassorin of the water-insoluble, gum dragon acid of the water-soluble.

As for the base of the polysaccharides, xylose, fucosyl xylose, galactoxylose are connected 1, 3 as side-chain to 1, principal chain of the 4-binding galacturonic acid with gum dragon acid.

Also,

The pectin as used herein is defined as "the thing which can do a sugar and acid and gel-forming under suitable many provisions with water-solubility pectic acid having various methyl ester ingredients content and neutralization degree" with the material which fruit or vegetables include generally (story of the stabilizer, August 20, 1985 Nichiei Chemical issuance, 37–49 pages).

Fatty acid ester of glycerin as used in this Invention is the ester of glycerine and the fatty acid or the derivative, and it refers to glycerine fatty acid monoester (popular name monoglyceride), glycerine organic acid fatty acid monoester, polyglycerol fatty acid monoester, polyglycerol condensation ricinoleic acid ester.

The glycerine fatty acid monoester is represented in the next nitramine (I).

(Wherein, RCO shows a fatty acid residue of carbon atom 12–24.)

For the fatty acid residue (RCO–) of the formula (I), a fatty acid residue coming from Lauric Acid, Myristic Acid, palmitic acid, stearic acid, oleic acid, behenic acid is included, and a fatty acid residue coming from saturated fatty acid above all is preferred.

The glycerine organic acid fatty acid monoester is represented in the next nitramine (II).

(Wherein, in RCO, fatty acid residue of carbon atom 12–24, A shows an organic acid residue.)

That is,

It is the chemical compound which esterified a –OH group of the third place of the glycerine fatty acid monoester in organic acid.

The exemplification of the fatty acid residue (RCO–) during expression (II) is the same as

the example of the fatty acid residue of the glycerine fatty acid monoester.

For organic acid comprising the glycerine organic acid fatty acid monoester of the formula (II), amino acid such as acetic acid, propionic acid, aliphatic monocarboxylic acid, oxalic acid, aliphatic saturated dicarboxylic acids such as the succinic acid, maleic acid, aliphatic unsaturated dicarboxylic acid such as the fumaric acid, lactic acid, malic acid, tartaric acid, diacetyl tartaric acid, oxy acid such as citric acid comprised of lower fatty acid such as the butyric acid and glycine, the aspartic acid is exemplified.

For purposes of the present invention, either glycerine organic acid fatty acid monoester which assumes the organic acid a component is valid, but, for the organic acid which specifically comprises glycerine organic acid fatty acid monoester, citric acid, succinic acid, tartaric acid, diacetyl tartaric acid are preferred.

Also,

The commercial glycerine organic acid fatty acid monoester includes organic acid or glycerine fatty acid monoester of the unreacting partly, but even if such a commercial glycerine organic acid fatty acid monoester is used for this Invention, it does not interfere.

Polyglycerol fatty acid monoester is a compound represented in the next nitramine (III). (Wherein, fatty acid residue of carbon atom 12-24, n show degree of polymerization of the glycerol, and RCO is 1-9 integer values.)

The exemplification of the fatty acid residue (RCO-) during expression (III) is the same as the example of the fatty acid residue of the glycerine fatty acid monoester.

Exemplification of polyglycerol comprising polyglycerol fatty acid monoester includes tetraglycerine, pentaglycerine, hexaglycerine, heptaglycerine, octaglycerine, nonaglycerine, deca glycerine.

Polyglycerol condensation ricinoleic acid ester is ester with polyglycerol and the condensation ricinoleic acid, and admixture of a thing with polyglycerol of glycerine degree of polymerization 2-3 and the condensation ricinoleic acid of condensation degree 3-5 of the re-Shino -  $\text{JL}$  acid or the diester is usually used.

As for the weight ratio of the natural gum agent (a) and fatty acid ester of glycerin (b) in a modifying agent for bread in this Invention, (b) should satisfy 1:0.1 - 10 (a).

If fatty acid ester of glycerin (b) becomes under 0.1 in the balance of this ratio to natural gum agent (a) 1, deficiency comes to have a slight and comes to be available when the bread that it is burnt when fatty acid ester of glycerin (b) goes over 10 adversely is the texture top, and the softness becomes unsatisfactory for the burnt bread for bread together.

That is,

Bread is tender and it arrives, and it is provided realized, and to do in a state, this (a), proportion of (b) is important.

Also,

The natural gum agent and addition required amount with the fatty acid ester of glycerin to dough can put the nature gum agent and fatty acid ester of glycerin together, and it should be 0.1-5 copies to 100 copies of wheat flour (part by weight agrees with the part as follows).

It is less than 0.1 copies, and there are few effects on bread.

If addition regime in a bread ingredient is increased in excess of Part 5, the good bread is provided, but the addition five copies or more is watched by cost considerations without an effect being seen in the aptitude to improve more, and nonsense too much.

An additive for other bread may be added to a modifying agent for bread of this Invention as needed.

For example,

Dispersant such as ammonium chloride, ammonium sulfate, hardness including the ammonium hydrogenphosphate, a pH regulator becoming the nutrient source of the yeast and calcium carbonate, calcium sulfate, potassium bromate including the first calcium phosphate, ammonium persulfate, oxidizing agent such as the ascorbic acid, glutathione, reducing agent, reductant such as the cysteine, amylase, exogenous enzymes such as the protease, sucrose fatty acid ester, propylene glycol fatty acid ester, sorbitan fatty acid ester, lecithin, enzymatic hydrolysis lecithin, surfactant such as the calcium stearyl lactylate, sodium chloride, amylum, the wheat flour that it is can be used together with a modifying agent for bread of this Invention.

Using wheat flour as main raw material for an ingredient making dough (dough or a batter) in this Invention of course, other than wheat flour, the things which grain flour kinds such as potato amylum, corn starch, the wheat starch were also added to such as flour ground from barley, rye flour ground from barley, corn meal can be used to wheat flour very much.

In the dough which addition mixing does active ingredients and a modifying agent for bread doing, and made the natural gum agent and fatty acid ester of glycerin in the bread ingredient which is based on wheat flour, it is very soft according to law of the art by fermentation and burning, and high quality bread can be obtained.

With the bread as used in this Invention, yeast, yeast food, oils and fats (shortening, lard, artificial butter, butter, liquid oil), water (tsukune water), dairy products, a salt, saccharide are added to wheat flour as material to manufacture bread, e.g., the main raw material, and addition mixing does emulsifying agent, seasoning (glutamine acids and nucleic acid), food preservative, vitamins, fortifier dietary supplements such as calcium, protein, chemistry swelling agent, higher than of the flavor, etc. one kind or two kinds more as needed, and it refers to the thing which it passes through fermentation process, and burnt.

Of course,

Bread as used herein includes the bread which did space filler such as the filling.

That is,

The bread as used in this Invention means bread, special bread, cooking bread, a sweet roll, steamed bread.

For example,

Bread includes manchet, black bread, French bread, variety bread; roll (a table roll, vans, a buttered roll).

Grissini, a muffin, cooking bread including the rusk include jam bread, bean-jam bun, cream bread, raisin bread, melon bread, sweet roll, Rich goods (croissant, a brioche, Danish pastry) for tube steak, a hamburger, a sweet roll including the pizza pie, and special bread includes a steamed meat bun, a steamed bun for steamed bread.

#### EXAMPLE

Practical example (a reference example, the comparative example include, too) is shown next, and this Invention is described in detail.

The part of practical example is all part by weight.

A reference example

Based on formulate shown in evaluation method Table 1 of dough and manufacturing conditions of the bread, a manufacturing method and the bread, bread is manufactured in the species law among 70%, and the bread is evaluated.

Enter ball, and, using a vertical universal cooking machine (10 Kanto universal cooking machine coats), a traction hook, mixing does a middle species compounding agent in middle or high speed one minute for low speed two minutes, and cooking up temperature is done with 24 degrees Celsius, and a middle species clothing fabric is prepared.

If it is from 70 copies of powerful wheat flour, yeast two copies, yeast food 0.1 copies, water 40 copies, and the middle species compounding agent does here with basic formulation, and a modifying agent for bread is put, it is added with this middle species.

However, it does not interfere basically even if it is put with this tsukune.

It makes this make fermentation (species fermentation) next.

The provisions of this time as follows.

Middle species fermentation temperature

24 degrees Celsius

Middle species fermentation relative humidity

75%

Middle species fermentation time

Four hours 30 minutes

Middle species fermentation end point product warm

29.5 degrees Celsius

Then

After this tsukune compounding agent was added in this middle species fermentation clothing fabric, and having done mixing in middle or high speed four minutes for low speed three minutes, oils and fats was added, and mixing was done more in middle or high speed three minutes for low speed two minutes, and it was done with this tsukune clothing fabric.

It is from powerful 30 copies of wheat flour, salt two copies, sugar five copies, skim milk copy, water 25 copies, oils and fats five copies (only the oils and fats adds in the middle of mixing), and this tsukune compounding agent does here with basic formulation, and the as described above modifying agent for bread puts a modifying agent for bread in a middle species in this reference example which may be added with this tsukune, and water of the required amount may be added, if necessary.

The stock temperature of this time is approximately 27.5 degrees Celsius.

Then

The floor time is taken for 20 minutes to revive the clothing fabric which received damage in mixing, and it is divided in a clothing fabric of 450g in this rear.

The bench time is taken in room temperature for 20 minutes to revive the clothing fabric which received damage by apportionment, and it has orthopedic treatment in Mulder.

A cosmetic surgery thing is put in a bread type of the one loaf next, and fermentation (final proof) is performed.

Provisions of the final proof are shown below.

Final proof temperature 37 degrees Celsius

Final proof relative humidity

80%

For final proof time 50

It burns in open of 210 degrees Celsius in dough prepared in this way 30 minutes.

After having cooled off at 20 degrees Celsius after calcination for 45 minutes, enter a plastic bag, and it is made seal, and it is further preserved at 20 degrees Celsius (48 hours) for two days, and it is done with a bread sample.

This bread is cut in constant bulk (2.5cm \*2.5cm \*2.0cm) in the site of the fixed distance (6cm) from the side 48 hours later, and baker ZUKOMPU lessee meter (a product made in Chiyoda Manufacturing) is used about sample, specimen of provided cubicalness, and hardness of the bread is measured, and the softness of the bread is evaluated.

As a small thing of the measurements, it is shown that bread is tender.

As follows,

Practical example, comparative examples were the above-mentioned provisions and controlled condition together, and dough and bread were manufactured, and it was evaluated.

Practical example 1-4 and comparative example 1-5

Using manufacturing conditions, a manufacturing method shown in a reference example and an evaluation method, bread was manufactured, and evaluation (evaluation of the hardness) of provided bread was performed.

The preparation process of this bread is as follows.

For a modifying agent for bread in the middle species compounding agent, a constituent shown in Table 2 was used.

Also,

The evaluation result of provided bread appeared as shown in Table 3.

#### EFFECT OF THE INVENTION

As above,

That superior bread software had an effect to 1:0.1 – 10 and constituent that it was combined so that it was, and it was and was available, and a weight ratio of (b) had a prevention effect or a texture improvement effect with fatty acid ester of glycerin more than one kind of a nature gum agent chosen (a) by a cluster comprising karaya gum, gum dragon gum and the pectin or two kinds (b) (a) was recognized.

Thus,

If dough containing a modifying agent for bread which assumes the said constituent active ingredients or a modifying agent for said bread is used, the preferable bread of a very soft texture can be manufactured.